



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,505	12/28/2001	Kevin X. Zhang	P11682	2608

25694 7590 03/15/2004
INTEL CORPORATION
P.O. BOX 5326
SANTA CLARA, CA 95056-5326

EXAMINER

CONNOLLY, MARK A

ART UNIT	PAPER NUMBER
----------	--------------

2115

DATE MAILED: 03/15/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

5k

Office Action Summary

Application No.

10/040,505

Applicant(s)

ZHANG ET AL.

Examiner

Mark Connolly

Art Unit

2115

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1-20-04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-11 and 13-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-11 and 13-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-3, 5-11 and 13-17 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6-12, 13 and 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Schutz et al¹ [Schutz] US Pat No 5440520 in view of Welser et al² [Welser] EP 0632360A1.

4. Referring to claim 1, Schutz teaches the invention substantially including:

- a. a first port to receive a supply voltage from an external voltage regulator, the supply voltage to power the processor [fig. 2 and col. 3 lines 59-63].
- b. a voltage sensor to monitor the supply voltage [38 fig. 2 and col. 7 lines 46-51].
- c. a second port to provide a control signal from the voltage sensor to the voltage regulator to indicate if the supply voltage is above or below a target value [fig. 2 and col. 7 lines 46-51].

The Schutz system does not explicitly teach reducing the target value if the system is inactive. In summary, Schutz does not explicitly teach reducing the voltage supplied to the system if it is determined that the system becomes idle. Welser teaches that if a system becomes idle, it is advantageous to reduce the voltage supplied to the system in order to conserve power [col. 6 line 18-col. 7 line 22]. It would have been obvious to one of ordinary skill in the art at the

¹ As cited by the applicant

Art Unit: 2115

time of the invention to modify the Schutz system to reduce the voltage supplied to the processor when the system becomes idle because Welser teaches that power consumption for the system can be optimized.

5. Referring to claim 2, Schutz teaches adjusting a target value [col. 3 line 59-col. 4 line 10].

6. Referring to claim 3, Schutz teaches that adjusting the voltage adjusts the operating frequency of the device [col. 2 lines 8-11]. Therefore, when the Schutz system adjusts its voltage, it inherently adjusts its operating frequency in order to meet a timing requirement.

7. Referring to claim 6, Schutz teaches that integrated circuit (10) can act as a processor [col. 4 lines 28-29 and 36-39]. Because the voltage sensor (38) is internal to the integrated circuit, it is interpreted that the voltage sensor is a portion of the core of the processor.

8. Referring to claims 7 and 8, Schutz teaches that the integrated circuit (10) includes a memory [col. 7 lines 24-30]. In addition, it is well known in the art that processors include cache memories wherein the integrated circuit (10) is being interpreted as a processor.

9. Referring to claims 9-12, 13 and 15, these are rejected on the same basis as set forth hereinabove.

10. Referring to claim 16, Schutz teaches coupling a Vcc output of the voltage regulator to a Vcc input of the processor [fig. 2].

11. Referring to claim 17, Schutz teaches coupling a Vcc control output of the processor to a Vcc input of the voltage regulator [fig. 2 and col. 3 line 59-col. 4 line 9].

12. Referring to claim 18, this is rejected on the same basis as set forth hereinabove.

² As cited by the applicant

Art Unit: 2115

13. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schutz and Welser as applied to claims 1-3, 6-11, 13 and 15-17 above, and further in view of Shingo et al.³ [Shingo] EP 0872790.

14. Referring to claim 5, the Schutz-Welser system does not explicitly teach that the voltage sensor (38) includes an op amp. In fact, the Schutz-Welser system does not explicitly teach anything that is included in voltage sensor (38) except only that the voltage sensor compares the input voltage to the required voltage of the system [col. 7 lines 46-51]. Shingo teaches a means to compare an input voltage to a reference voltage using an op amp [col. 3 line 18-col. 4 line 3]. The comparators in Shingo are interpreted as op amps. Shingo explains that by using the op amps the system can monitor whether or not the supply voltage has deviated from a reference voltage. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the Shingo op amps into the Schutz-Welser system because the Schutz-Welser system requires a means to compare voltages and Shingo teaches a system to provide those means.

15. Referring to claim 14, this is rejected on the same basis as set forth hereinabove.

Response to Arguments

16. The rejections are respectfully maintained and incorporated by reference as set forth in the last office action.

17. Applicant's arguments filed 1-20-04 have been fully considered but they are not persuasive.

³ As cited by the applicant

Art Unit: 2115

18. In the remarks, applicants argued in substance that (1) “neither Shutz nor Welser includes an enabling description of how to detect [if] the circuit/processor is inactive and adjust the target value of the supply voltage accordingly, as claimed by applicant” (2) “Although a prior art device ‘may be capable of being modified to run the way the apparatus is claim[ed], there must be a suggestion or motivation in the reference.’”

19. As to point (1), in response to applicant's argument that the references ‘fail to show certain features of applicant’s invention, it is noted that the features upon which applicant relies (i.e., detecting inactivity of a circuit/processor) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Furthermore it would be obvious to lower the target value of the supply voltage in Schutz if the circuit/processor is inactive because Welser teaches conserving power in a system when a circuit becomes idle [col. 6 lines 41-42]. Because in the Schutz-Welser system the power supply is controlled by voltage control signals, it is obvious to lower the voltage control signals in order to lower the power to the system. It is interpreted that the voltage control signals indicate a target value.

20. As to point (2), the test of obviousness is:

"whether the teachings of the prior art, taken as a whole, would have made obvious the claimed invention," *In re Gorman*, 933 F.2d at 986, 18 USPQ2d at 1888.

Subject matter is unpatentable under section 103 if it "'would have been obvious . . . to a person having ordinary skill in the art.' While there must be some teaching, reason, suggestion, or motivation to combine existing elements to produce the claimed

Art Unit: 2115

device, it is not necessary that the cited references or prior art specifically suggest making the combination." *In re Nilssen*, 851 F.2d 1401, 1403, 7 USPQ2d 1500, 1502 (Fed. Cir. 1988).

"Such suggestion or motivation to combine prior art teachings can derive solely from the existence of a teaching, which one of ordinary skill in the art would be presumed to know, and the use of that teaching to solve the same [or] similar problem which it addresses." *In re Wood*, 599 F.2d 1032, 1037, 202 USPQ 171, 174 (CCPA 1979).

"In sum, it is off the mark for litigants to argue, as many do, that an invention cannot be held to have been obvious unless a suggestion to combine prior art teachings is found *in* a specific reference."

Entire quote from *In re Oetiker*, 24 USPQ2d 1443 (CAFC 1992).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,


Art Unit: 2115

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Connolly whose telephone number is (703) 305-7849. The examiner can normally be reached on M-F 8AM-5PM (except every first Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C Lee can be reached on (703) 305-9717. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JEFFREY GAFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Mark Connolly
Examiner
Art Unit 2115

mc
March 11, 2004